

Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of claims:

1. (cancelled)

2. (previously amended) The modified *Trichoderma reesei* xylanase II of claim 72, wherein the modified *Trichoderma reesei* xylanase II exhibits improved alkalophilicity in comparison to a corresponding native xylanase.

3-47. (canceled)

48. (previously amended) A method of manufacturing pulp, comprising treating the pulp with the modified *Trichoderma reesei* xylanase II of claim 72.

49-60. (canceled)

61. (previously amended) The modified *Trichoderma reesei* xylanase II of claim 72 having a maximum effective temperature (MET) between about 69°C and about 84°C.

62. (previously amended) The modified *Trichoderma reesei* xylanase II of claim 61, wherein the MET is between about 70° and about 84°C.

63. (previously amended) The modified *Trichoderma reesei* xylanase II of claim 72 having a maximum effective pH (MEP) between about pH 5.8 to about pH 8.4.

64. (previously presented) The modified *Trichoderma reesei* xylanase II of claim 63, wherein the MEP is between about pH 6.0 and about pH 8.0.

65. (previously presented) The modified *Trichoderma reesei* xylanase II of claim 61, wherein the modified xylanase is further characterized as having a maximum effective pH (MEP) between about pH 5.8 and about pH 7.6.

66. (previously presented) The modified *Trichoderma reesei* xylanase II of claim 62, wherein the modified xylanase is further characterized as having a maximum effective pH (MEP) between about pH 6.5 and about pH 7.4.

67-71. (cancelled)

72. (currently amended) A modified *Trichoderma reesei* xylanase II ~~that exhibits activity on a xylan substrate, improved thermophilicity in comparison to a corresponding native *Trichoderma reesei* xylanase II of SEQ ID NO: 16, and comprising a modification at position 116, 118, 144, 161, or a combination thereof, the modified *Trichoderma reesei* xylanase II~~ selected from the group consisting of:

- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-Y27M-N29L-S75A-L105H-Q125A-I129E-H144R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-Y27M-N29L-S75A-L105H-Q125A-I129E-H144R-Q161R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-D116G;
- a modified *Trichoderma reesei* xylanase II comprising TrX-Y118C;
- a modified *Trichoderma reesei* xylanase II comprising TrX-H144R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-H144R-Q161R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-Y27M-N29L-S75A-L105H-D116G-Q125A-I129E-H144R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-Y27M-N29L-S75A-L105H-Y118C-Q125A-I129E-H144R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-N11D-Y27M-N29L-S75A-L105H-Q125A-I129E-H144R-Q161R;
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-N11D-Y27M-N29L-S75A-L105H-D116G-Q125A-I129E-H144R-Q161R;

- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-N11D-Y27M-N29L-S75A-L105H-Y118C-Q125A-I129E-H144R-Q161R; and
- a modified *Trichoderma reesei* xylanase II comprising TrX-N10H-N11D-Y27M-N29L-S75A-L105H-D116G-Y118C-Q125A-I129E-H144R-Q161R;

wherein the modified *Trichoderma reesei* xylanase II comprises an amino acid sequence that is from 93 to 99% identical to SEQ ID NO: 16, exhibits activity on a xylan substrate and improved thermophilicity in comparison to a corresponding native *Trichoderma reesei* xylanase II with an amino acid sequence as set forth in SEQ ID NO: 16.